

IN THE CLAIMS:

1 1. (Amended) A method of producing a PDP, the method comprising:
2 a first step of forming a front cover plate by forming a first electrode and a
3 dielectric glass layer on a front glass substrate then forming a protecting layer of an alkaline
4 earth oxide [with one] of [(100)-face orientation and] (110)-face orientation on the dielectric
5 glass layer; and
6 a second step of forming a back plate by forming a second electrode and a
7 fluorescent substance layer on a back glass substrate then bonding the front cover plate, on which
8 the protecting layer has been formed, with the back plate, and charging a gas medium into a
9 plurality of discharge spaces which are formed between the front cover plate and the back plate,
10 the front cover plate and the back plate facing to each other.

1 2. (Original) The method of producing a PDP of claim 1, wherein
2 in the first step, the protecting layer is formed with one of a thermal Chemical
3 Vapor Deposition method and a plasma Chemical Vapor Deposition method by using an alkaline
4 earth organometallic compound and oxygen.

1 3. (Original) The method of producing a PDP of claim 2, wherein
2 the alkaline earth organometallic compound used in the first step is one of an
3 alkaline earth metal chelate compound and an alkaline earth cyclopentadienyl compound.

1 4. (Original) The method of producing a PDP of claim 3, wherein
2 the alkaline earth organometallic compound used in the first step is one of
3 $M(C_{11}H_{19}O_2)_2$, $M(C_5H_7O_2)_2$, $M(C_5H_5F_3O_2)_2$, and $M(C_5H_5)_2$, wherein M represents one of
4 magnesium, beryllium, calcium, strontium, and barium.

1 5. (Amended) A method of producing a plasma display panel having a plurality of
2 discharge space cells with a front substrate and a rear substrate and walls separating each cell,
3 each discharge space is addressable by display electrodes to cause the cell to emit light
4 comprising:

5 depositing a protective layer of an alkaline earth oxide having [one of a (100)
6 crystal face orientation and] a (110) crystal face orientation extending across a top surface of
7 each cell; and

8 charging each cell with a discharge gas.

1 6. (Original) The plasma display panel method of claim 5 wherein each cell is
2 pressurized to pressure of approximately 500 to 760 Torrs.

1 7. (Original) The plasma display panel method of claim 6 wherein each cell is
2 charged with an xenon discharge gas between 10% by volume to approximately 100% by
3 volume.

1 8. (Original) The plasma display panel method of claim 7 wherein one of argon,
2 krypton, helium and neon is mixed with the xenon.

1 9. (Original) The plasma display panel method of claim 7 wherein one of argon and
2 krypton is mixed with the xenon in sufficient volume to provide ultraviolet light emission at a
3 wavelength of 173 nm.

1 10. (Original) The plasma display panel method of claim 7 wherein two additional
2 discharge gases within the range of 10% to 50% by volume are mixed with the xenon.

1 11. (Original) The plasma display panel method of claim 6 wherein a distance
2 between adjacent display electrodes in the same plane is no greater than 0.1 mm.

1 12. (Original) The plasma display panel method of claim 5 wherein the protective
2 layer is selected from a group consisting of MgO, BeO, CaO, SrO and BaO.

1 13. (Original) The plasma display panel method of claim 5 wherein the protective
2 layer is magnesium oxide with a crystal face orientation of (110).

1 14. (Amended) The plasma display panel method of claim 5, wherein the first
2 substrate includes a dielectric glass layer and the dielectric glass layer is heated to a temperature
3 between 350° C[.] to 400° C[.] during the depositing of the protective layer by a thermal
4 chemical vapor deposition.

1 15. (Amended) The plasma display panel method of claim 5, wherein the front
2 substrate includes a dielectric glass layer and the dielectric glass layer is heated to a temperature
3 between 250° C[.] to 300° C[.] during the depositing of the protective layer by a plasma
4 enhanced chemical vapor deposition.

1 16. (Original) The plasma display panel method of claim 5, wherein the front
2 substrate includes an upper glass plate and a lower dielectric glass layer, and display electrodes
3 are formed from depositing a conductive paste on the upper glass plate, the paste is then baked to
4 harden it and subsequently is sandwiched with the lower dielectric glass layer.

1 17. (Original) The plasma display panel method of claim 5, wherein the protective
2 layer is deposited by transferring a paste of the alkaline earth oxide to the front substrate and
3 baking it.

1 18. (Original) The plasma display panel method of claim 17, wherein the paste is a
2 magnesium salt with a plate-shaped crystal structure.

1 19. (Original) The plasma display panel method of claim 18, wherein the paste is
2 magnesium oxalate formed by dissolving ammonium oxalate in a magnesium chloride aqueous
3 solution and heating it to form the plate-shaped crystal structure.

1 20. (Original) The plasma display panel method of claim 5, wherein the depositing of
2 the protective layer is made by evaporating the alkaline earth oxide with an ion/electron beam in
3 a vacuum.

1 21. (Original) A method of producing a plasma display panel having a plurality of
2 discharge space cells, each discharge space cell is addressable by display electrodes to cause the
3 cells to emit light, comprising:

4 depositing a protective layer of an alkaline earth compound selected from the
5 group consisting of $M(C_{11}H_{19}O_2)_2$, $M(C_5H_7O_2)_2$, $M(C_5H_5F_3O_2)_2$, and $M(C_5H_5)_2$, wherein M
6 represents one of magnesium, beryllium, calcium, strontium, and barium, the protective layer
7 having one of a (100) crystal-face orientation and a (110) crystal-face orientation extending
8 across a surface of each cell; and

9 charging each cell with a discharge gas.

1 22. (Original) The plasma display method of claim 21, wherein the protective layer is
2 deposited by one of a thermal chemical vapor deposition step and a plasma enhanced chemical
3 vapor deposition step.

1 23. (Original) The plasma display method of claim 22, wherein the discharge gas
2 includes at least 10% by volume Xe and is at a pressure of at least 500 Torr.

1 24. (Original) The plasma display method of claim 23, wherein the discharge gas
2 includes one of Ar and Kr.

1 25. (Amended) The plasma display method of claim 23 wherein the discharge gas is
2 selected from a group consisting of [Ar-He-Xe,] Ar-He-Xe, Kr-Ne-Xe, and Kr-He-Xe and the
3 amount of Kr, Ar, He, or Ne should be in the range of 10% to 50% by volume.

1 26. (Original) The plasma display method of claim 23, wherein the alkaline earth
2 compound is selected from the group consisting of magnesium dipivaloyl methane, magnesium
3 acetylacetone, magnesium trifluoroacetylacetone, and cyclopentadienyl.

1 27. (Original) A method of producing a plasma display panel having a plurality of
2 discharge space cells, each discharge space cell is addressable by display electrodes to cause the
3 cell to emit light, comprising:

4 depositing a protective layer selected from the group consisting of magnesium
5 dipivaloyl methane, magnesium acetylacetone, magnesium trifluoroacetylacetone, and
6 cyclopentadienyl magnesium across a surface of each cell to provide one of a (100) crystal-face
7 orientation and a (110) crystal-face orientation; and

8 charging each cell with a discharge gas including at least 10% by volume Xe at a
9 pressure of at least 500 Torr.

1 28. (Amended) A method of producing a PDP, the method comprising:
2 a first step of forming a front cover plate by forming a first electrode and a
3 dielectric layer on a front glass substrate, then forming a protecting layer of an alkaline earth
4 oxide with (110)-face orientation on the dielectric layer; and
5 a second step of forming a back plate by forming a second electrode and a
6 fluorescent substance layer on a back glass substrate;
7 a third step of bonding the front cover plate with the back elate and introducing a
8 gas medium into a plurality of discharge spaces which are formed between the front cover plate
9 and the back plate, the front cover plate and the back plate facing to each other.

1 29. (Original) The method of Claim 28, wherein
2 in the first step, the protecting layer is formed with one of a thermal Chemical
3 Vapor Deposition method and a plasma Chemical Vapor Deposition method by using an alkaline
4 earth organometallic compound and oxygen.

1 30. (Original) The method of producing a PDP of Claim 29, wherein
2 the alkaline earth organometallic compound used in the first step is one of an
3 alkaline earth metal chelate compound and an alkaline earth cyclopentadienyl compound.

1 31. (Amended) The method of producing a PDP of Claim 30, wherein

2 The alkaline earth organometallic compound used in the first step is one of
3 $M(C_{11}H_{19}O_2)_2$, $M(C_5H_7O_2)_2$, $M(C_5H_5F_3O_2)_2$, and $M(C_5H_5)_2$, wherein M represents one of
4 magnesium, beryllium, calcium, strontium, and barium.

1 32. (Amended) A method of producing a plasma display panel having plurality of
2 discharge space cells comprising the steps of:

3 depositing a protective layer of an alkaline earth oxide having a (110) crystal face
4 orientation on a surface of a dielectric layer of a substrate;

5 and

6 introducing a discharge gas into each cell.

1 33. (Original) The plasma display panel method of Claim 32, wherein each cell is
2 pressurized to a pressure of approximately 500 to 750 Torrs.

1 34. (Original) The plasma display panel method of Claim 33, wherein each cell is
2 charged with a xenon discharge gas between 10% volume to approximately 100% by volume.

1 35. (Original) The plasma display panel method of Claim 34, wherein one of argon,
2 krypton, helium, and neon is mixed with the xenon.

1 36. (Original) The plasma display panel method of Claim 34, wherein one of argon
2 and krypton is mixed with the xenon in sufficient volume to provide ultraviolet light emission at
3 a wavelength of 173 nm.

1 37. (Original) The plasma display panel method of Claim 34, wherein two additional
2 discharge gases within the range of 10% to 50% by volume are mixed with the xenon.

1 38. (Original) The plasma display panel method of Claim 33, wherein a distance
2 between adjacent display electrodes in the same plane is no greater than 0.1 mm.

1 39. (Original) The plasma display panel method of Claim 32, wherein the protective
2 layer is selected from a group consisting of MgO, BeO, CaO, SrO, and BaO.

1 40. (Original) The plasma display panel method of Claim 32, wherein the protective
2 layer is magnesium oxide with a crystal face orientation of (110).

1 41. (Original) The plasma display panel method of Claim 32, wherein the first
2 substrate includes a dielectric layer and the dielectric layer is heated to a temperature between
3 350°C to 400°C during the depositing of the protective layer by a thermal chemical vapor
4 deposition.

1 42. (Original) The plasma display panel method of Claim 32, wherein the front
2 substrate includes a dielectric layer and the dielectric layer is heated to a temperature between
3 250°C to 300°C during the depositing of the protective layer by a plasma chemical vapor
4 deposition.

1 43. (Original) The plasma display panel method of Claim 32, wherein the front
2 substrate includes a glass plate and display electrodes are formed by depositing a conductive
3 paste on the glass plate, the paste is then baked to be hardened and the display electrodes
4 subsequently are sandwiched between the glass plate and the dielectric layer.

1 44. (Original) The plasma display panel method of Claim 32, wherein the protective
2 layer is deposited by transferring a paste of the alkaline earth oxide to the front substrate and
3 baking it.

1 45. (Original) The plasma display panel method of Claim 44, wherein the paste is
2 magnesium salt with a plate-shaped crystal structure.

1 46. (Original) The plasma display panel method of Claim 45, wherein the paste is
2 magnesium oxalate formed by dissolving ammonium oxalate in a magnesium chloride aqueous
3 solution and heating it to form the plate-shaped crystal structure.

1 47. (Original) The plasma display panel method of Claim 32, wherein the depositing
2 of the protective layer is made by evaporating the alkaline earth oxide with an ion/electron beam
3 in a vacuum.

1 48. (Original) A method of producing a plasma display panel having a plurality of
2 discharge space cells comprising:
3 depositing a protective layer of an alkaline earth compound selected from the
4 group consisting of $M(C_{11}H_{19}O_2)_2$, $M(C_5H_7O_2)_2$, $M(C_5H_5F_3O_2)_2$, and $M(C_5H_5)_2$, wherein M
5 represents one of magnesium, beryllium, calcium, strontium, and barium, the protective layer
6 having one of a (100) crystal-face orientation and a (110) crystal-face orientation extending
7 across a surface of each cell; and
8 introducing a discharge gas into each cell.

1 49. (Original) The plasma display method of Claim 48, wherein the protective layer
2 is deposited by one of a thermal chemical vapor deposition step and a plasma enhanced chemical
3 vapor deposition step.

1 50. (Original) The plasma display method of Claim 49, wherein the discharge gas
2 includes at least 10% by volume Xe and is at a pressure of at least 500 Torr.

1 51. (Original) The plasma display method of Claim 50, wherein the discharge gas
2 includes one of Ar and Kr.

1 52. (Amended) The plasma display method of Claim 50, wherein the discharge gas is
2 selected from a group consisting of Ar-He-Xe, Kr-Ne-Xe, and Kr-He-Xe and the amount of Kr,
3 Ar, He, or Ne should be in the range of 10% to 50% by volume.

1 53. (Original) The plasma display method of Claim 50, wherein the alkaline earth
2 compound is selected from the group consisting of magnesium dipivaloyl methane, magnesium
3 acetylacetone, magnesium trifluoroacetylacetone, and cyclopentadienyl.

1 54. (Original) A method of producing a plasma display panel having a plurality of
2 discharge space cells comprising the steps of:
3 depositing a protective layer selected from the group consisting of magnesium
4 dipivaloyl methane, magnesium acetylacetone, magnesium trifluoroacetylacetone, and
5 cyclopentadienyl magnesium across a surface of each cell to provide one of a (100) crystal-face
6 orientation and a (110) crystal-face orientation; and

7 charging each cell with a discharge gas including at least 10% by volume Xe at a
8 pressure of at least 500 Torr.

1 55. (Original) In a method of producing a plasma display panel having a plurality of
2 discharge space cells with dielectric layers, the improvement comprising:
3 evaporating with an electron gun an alkaline earth oxide; and
4 forming a protective layer of the alkaline earth oxide with (110) crystal-face
5 orientation on the dielectric layer.

1 56. (Original) The method of Claim 55, wherein the alkaline earth oxide is
2 magnesium oxide.

1 57. (Original) The method of Claim 55, wherein the temperature of the dielectric
2 layer was between 250°C and 300°C.

1 58. (Original) In a method of producing a plasma display panel having a plurality of
2 discharge space cells with dielectric layers, the improvement comprising:
3 evaporating a metal chelate of alkaline earth oxide in a bubbler;
4 transferring the evaporated metal chelate of alkaline earth oxide to a reaction
5 container;
6 reacting the evaporated metal chelate of alkaline earth oxide with oxygen; and
7 forming a protective layer of alkaline earth oxide with (100) crystal-face
8 orientation on the dielectric layer.